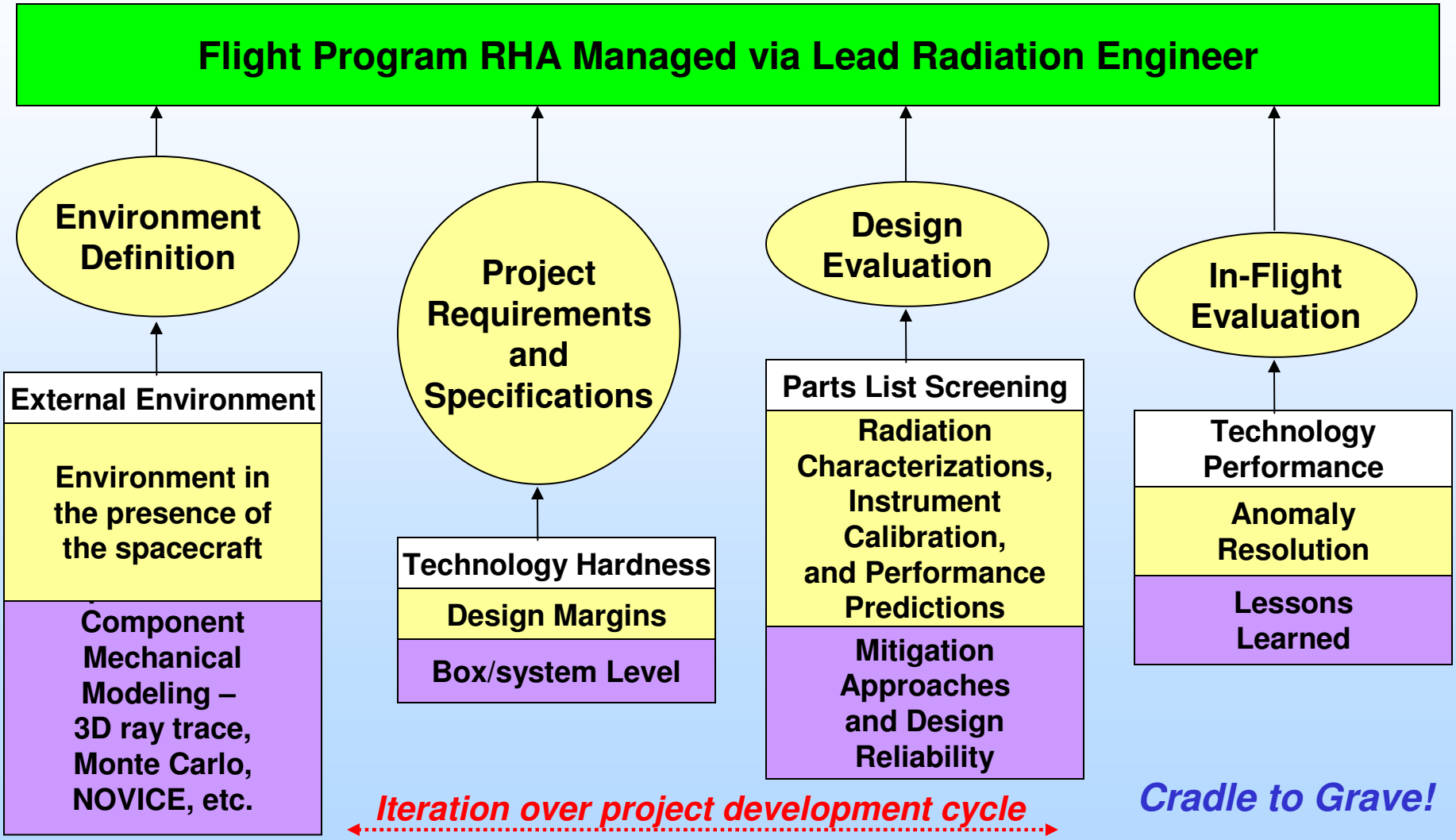
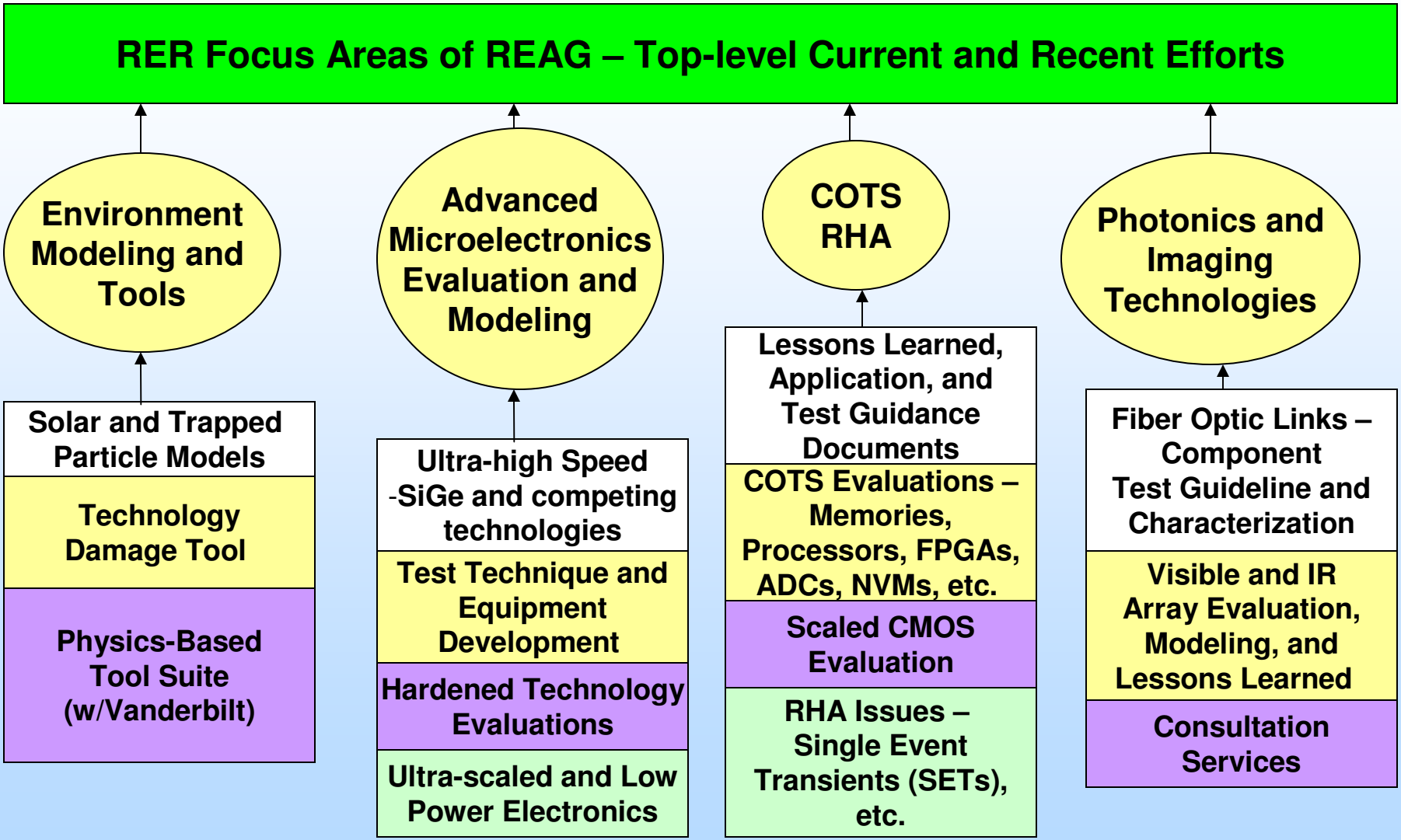
Flight Program Radiation Hardness Assurance (RHA) Flow by REAG



NASA/GSFC Radiation Effects and Analysis Group (REAG)- Radiation Effects Research (RER)



We also perform technology needs and readiness studies as well as develop and track flight experiments.

REAG - Work Areas
Alternate View

Electronics Effects

Single Event Effects
- Research (Device Physics)
- Research (Engineering)
- Project - Specific Tests
- Terrestrial Effects

Total Ionizing Dose
- Research
- Project - Specific Tests

Displacement Damage Effects
- Research
- Project - Specific Tests

Specialty/Technologies
- Photonics
  - Fiber Optics (O/E)
  - Optical Fibers
  - Imagers, IR Arrays, Focal Plane Arrays (FPAs)
- Materials
  - Shielding Properties and Interaction Physics
- Hybrid Devices
  - DC-DC Comverters, Optocouplers
- Specialty Electronics
  - FPGAs, Processors, Memories
  - High-speed and low power
  - Advanced Mixed Signal, ADCs
- Scaled CMOS, SOI, and Power Devices

Radiation Environment
- Research/Modeling
- Mission - Specific Analysis
- 3-D Ray Traces
- Terrestrial/Avionics Environment
- Tool Development

Data Dissemination
- Website
  - Test Data
  - Papers
  - Warnings
  - Background Information
- Publications
- Training Courses
- NASA/GIDEP alerts

Ground Radiation Test Facilities
- GSFC Radiation Sources
  - Van de Graaff accelerators
  - Co-60 Chamber
  - Alpha Source
- Offsite
  - Heavy Ions: NSCL, BNL, TAMU, LBNL
  - Microbeam: SNL
  - Proton: IUCF RERP, UCD CNL

Flight System Support
- Lead Project Engineers
- Predictive Tool Development
- NASA Issues
- Mitigation Methods
- Mission Specific Analysis
- Guidelines Documentation

Flight Experiments
- Commercial Electronics
- Photonics/FPAs
- Flight Dosimeters
- Engineering Data Analysis

Instrument Calibration
- Proton/Electron (low energy - on site)
- Proton/Electron (high energy - off site)

Material Damage
- Proton/Electron (low energy - on site)